

**In The Drawings:**

Please substitute the two sheets of drawings submitted herewith containing Figures 1, 1A, 1B, and 1C in place of the originally filed drawing sheets containing the same Figures.

**REMARKS****Introductory Comments:**

Claims 1-34 are pending in the application. Claims 23-29 and 31-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being obvious over US Patent 6474753 to Rieth et al. in view of US Patent 6488109 to Igaki et al. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. and Igaki et al. in view of US Patent 6411204 to Bloomfield et al. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. and Igaki et al. in view of US Patent 4989103 to Maekawa. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. and Igaki et al. and Maekawa and further in view of US Patent 6543567 to Deluca et al. Claims 13, 31, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. and Igaki et al. in view of Deluca et al. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. and Igaki et al. in view of US Patent 4050746 to Durling. Claims 15, 21, 23-27, 29, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. in view of Maekawa. Claims 17, 19, 31, and 33 are rejected as being unpatentable over Rieth et al. and Maekawa and further in view of Deluca et al. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. in view of Maekawa and further in view of Igaki et al. Claims 20 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. in view of Maekawa and further in view of Durling. Claims 22 and 28 are rejected as being unpatentable over Rieth et al. and Maekawa and further in view of Bloomfield et al. Claims 1 and 23 are rejected under the judicially created

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doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 13 of U.S. Patent No. 6677856 in view of Rieth et al. and Igaki et al. Claims 12, 16, and 30 are cancelled, and Applicants respectfully request reconsideration of claims 1-11, 13-15, 17, 29, and 31-34.

**In Response To The Drawing Objections:**

Regarding the drawing objections discussed in paragraph 1 of the Office Action, Applicants have amended the drawings in accordance with the Examiner's suggestions and have further amended paragraphs [0019] and [0026] of the Detailed Description of the Preferred Embodiment such that numbers in the amended drawings are clearly represented therein. No new matter has been added. Applicants therefore submit two Replacement Sheets containing Figures 1, 1A, 1B, and 1C.

Applicants believe that the drawing objections are overcome in view of the aforementioned amendments to the drawings and the Detailed Description of the Preferred Embodiment.

**In Response To The Specification Objections:**

The Specification is objected to for failing to reference Figure 1. The Applicants respond to the aforementioned objection by amending paragraph [0013] of the Detailed Description of the Preferred Embodiment in accordance with the Examiner's suggestions.

**In Response To The 35 U.S.C. 112, Second Paragraph Claim Rejections:**

Claims 23-29 and 31-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

More specifically, claim 23 is rejected for lacking proper antecedent basis, and claims 24-29 and 31-34 are rejected due to dependency thereon. In response, claim 23 has been amended to remove the antecedent basis problem.

The Applicants believe that the aforementioned amendment clarifies the original intent of claims 23-29 and 31-34, and that the 35 U.S.C. 112 rejection is hereby overcome.

**In Response To The 35 U.S.C. 103(a) Claim Rejections:**

According to the Office Action, claims 1-6 are obvious because Rieth et al. show in figures 1 and 3 a vehicle braking system inherently having a wheel coupled to a vehicle, a brake disclosed in col. 3 lines 21-22 coupled to the wheel, wherein the wheel includes a friction component disclosed in col. 3 line 22 for inhibiting rotation of the wheel, the brake having a first state wherein the friction component is positioned a first distance from the wheel (before pre-charging), and a second state or the pre-charging state disclosed in col. 3 lines 20-24 wherein the friction component is positioned a second distance from the wheel closer than the first distance. The Office Action alleges the vehicle braking system includes a proximity sensor coupled to the vehicle and sensing an object along a direction of travel of the vehicle and generating a proximity signal therefrom, and a controller 17,20 receiving the proximity signal and generating therefrom a threat of collision prediction signal, the controller moving the friction component from the first state to the second state as a function of a high threat of collision determined from the threat of collision prediction signal as suggested in col. 8 lines 28-39. The Office Action recognizes that Rieth et al. does not include the limitation of the movement of the friction component being halted through pedal activation.

According to the Office Action, Igaki et al. teach in col. 8 lines 9-13 the use of automatic braking or the automatic movement of a friction component being halted through throttle pedal activation.

As discussed above, the Rieth et al. reference is directed to a typical automatically actuated braking system responsive to road conditions and driver's wishes as assumed by the system (Abstract.). More importantly, Rieth et al. do not teach or suggest, the controller halting moving of the friction component from the first state to the second state as a function of throttle activation as claimed.

The Office Action argued that the Applicants' arguments were directed against the references individually and cited *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981) and *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). *In re Keller* and *In re Merck*, however, are clearly distinguishable from the present case. Both *In re Keller* and *In re Merck* discuss situations where the applicant(s) presented evidence attacking a single one of the references cited in a rejection while not presenting evidence or arguments rebutting other references cited. Neither *In re Keller* or *In re Merck* rule that arguing, as do the Applicants, that the combination of references was not taught or suggested in any or all of the prior art references can be considered "attacking references individually." Instead *In re Keller* (on which the Opinion of *In re Merck* is based) sets forth the test for obviousness:

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.

*In re Keller*, 642 F.2d at 425. In other words, one of skill in the art must have been motivated to combine the various references. *Metabolite Laboratories, Inc. v. Laboratory Corp. of America Holdings*, 370 F.3d 1354, 1368 (Fed. Cir. 2004) citing *Ecolucem, Inc. v. S. Cal. Edison Co.*, 227 F.3d 1361, 1372 (Fed.Cir.2000) ("Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some **teaching or suggestion** supporting the combination." (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed.Cir.1984) (emphasis added))).

In the present case, the Applicants argue that Rieth et al. do not include a controller halting movement of a friction component in relation to a rotor as a function of throttle control, and therefore, Rieth et al. merely generates brake charge signals as a function of movement of the driver foot in relation to the brake pedal and does not address throttle control. Rieth teaches away from halting braking operations or at least does not teach or suggest halting of braking operations as claimed. Rieth braking operations are controlled through calculating an amount of brake charge required through detecting foot movement toward the brake and vehicle distance signals. Adjustment of the brake charge (and presumably absence of brake charge) is controlled independently of any throttle control. No reason is presented as to why these separate functions should be combined.

The Igaki et al. reference is directed to a conventional stability control apparatus. (Abstract.) Igaki et al., however, do not disclose or teach the use of throttle control for overriding brake pre-charging as claimed. Igaki et al. also does not teach or suggest that application of the Igaki et al. system would be in any way beneficial to halting brake pre charging operations. Instead, Igaki et al. teaches

stopping braking of the vehicle as a function of controlling vehicle stability control. (Column 8, lines 9-13.) Most stability control systems include similar halting of braking. It would not, therefore, have been obvious to modify Igaki et al. as the Office Action proposes.

The Rieth et al. and Igaki et al. references are directed to conventional speed control and stability control systems. More importantly, no reason has been shown why it would be obvious to selectively combine these references to produce the claimed invention. The claims include a failsafe measure not taught or suggested by the prior art. The Applicants submit that no motivation has been shown to combine the references as proposed, and claims 1-6 should therefore be allowed.

Regarding the rejections of claims 7-11 and 13-14, these claims depend from claim 1 and are believed to be allowable for at least the reasons listed above.

Claims 7-9 are rejected as being unpatentable over Rieth et al. and Igaki et al. in view of Bloomfield et al. Claims 7-9 depend from the amended claim 1 and are therefore believed to be allowable for at least the reasons discussed above.

Claim 10 is rejected as being unpatentable over Rieth et al. and Igaki et al. in view of Maekawa. According to the Office Action, Rieth et al. describe the invention substantially as set forth above including the limitation of a third state (which, the Office Action alleges, corresponds to the actual application of the brake with the lining touching the rotor) by way of element 20 as suggested in figure 3. The Office Action recognizes that Rieth et al. do not include the limitation of the friction component reaching a third state from a signal indicating that a throttle pedal has been released.



The Office Action alleges Maekawa et al. teach in col. 4, lines 34-37 the use of a brake control system in which a third state of actual brake application is achieved from detection of a signal indicating that a throttle pedal has been released.

Although the Applicants believe claim 10 to be allowable in its current form they nevertheless amended claim 10 to include that movement of the friction component to the third state is a pre-charging operation in accordance with paragraph [0028] of the Detailed Description Of The Preferred Embodiment. No new matter has been added.

As the Office Action recognized, both Rieth et al. and Maekawa et al. do not include a third state whereby the friction components are moved a third distance from the rotor through a pre-charging operation, rather they teach that a third state could be where the friction components contact the rotor, which is an actual charging operation as opposed to a pre-charging operation. Therefore because each and every element of the claimed invention is not disclosed or suggested in the prior art, claim 10 is believed to be allowable.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rieth et al. and Igaki et al. and Maekawa and further in view of DeLuca et al. The Office Action recognizes that Rieth et al., as modified, fail to include the limitation of the controller inhibiting the friction component moving from the first state or the second state to the third state only if a failure with throttle actuation cannot be determined.

According to the Office Action, DeLuca et al. teach in lines 6-11 from the bottom of the abstract the use of a braking system in which a controller will inhibit the friction component moving into the third state which is brake application



(by disengaging the braking system as disclosed in line 10 from the bottom of the abstract) only if a failure with throttle actuation cannot be determined.

Claim 11 depends from the amended claim 10 and is believed to be allowable for at least the same reasons in view of the fact that none of Rieth et al., Igaki et al., Maekawa, and DeLuca disclose or suggest that the third state includes a pre-charging operation as claimed. Rieth et al., Igaki et al., and Maekawa were discussed above, and DeLuca, as the Office Action points out includes inhibiting the friction component moving into a brake application state rather than the claimed pre-charge state. In other words, because each and every element of the claims is not taught or suggested in the prior art, claim 11 is believed to be allowable.

Claims 13, 31, 33, and 34 are rejected as being unpatentable over Rieth et al. and Igaki et al. in view of DeLuca et al. Rieth et al., as modified, as best understood, fail to include the limitation of inhibiting the second stage pre-charge only if a failure with throttle actuation cannot be determined and Rieth et al., as modified, also fail to include the limitation of halting the second stage pre-charge in response to the vehicle near a limit of handling point regardless of an estimated threat. According to the Office Action, DeLuca et al. teach in lines 6-11 from the bottom of the abstract the use of a braking system in which the second stage pre-charge is inhibited (by bringing the braking system to a fully disengaged state as disclosed in line 10 from the bottom of the abstract and in lines 62-63 of col. 5) only if a failure or fault with throttle actuation cannot be determined. DeLuca et al. also allegedly teach in the first 6 lines of the abstract the limitation of halting the second stage pre-charge (by remaining in an engaged braking state) is halted in response to the vehicle near a limit of handling point (a vehicle malfunction) regardless of an estimated threat.

Claim 13 is believed to be allowable in view of its dependence on claim

1. Claims 31, 33, and 34 are believed to be allowable for at least the same reasons as claims 10 and 11. In other words, the references do not disclose or suggest a second stage pre-charge operation and instead teach a charge operation, and therefore, all the elements of claims 31, 33, and 34 are not taught in the prior art.

Claim 14 is rejected as being unpatentable over Rieth et al. and Igaki et al. In view of Durling. The Office Action recognizes that Rieth et al., as modified, fail to include the limit friction component in response to failure of the vehicle brake system. The Office Action alleges Durling teaches in lines 3-5 of the abstract teaches the use of preventing movement into a third state or brake application (particularly response to failure of the vehicle brake system).

Claim 14 depends from claim 1 and is believed to be allowable for at least this reason.

Claims 15, 21, 23-27, 29, and 32 are rejected as being unpatentable over Rieth et al. in view of Maekawa. The Office Action alleges Rieth et al. show in figures 1 and 3 a vehicle braking system inherently having a wheel coupled to a vehicle, a brake disclosed in col. 3 lines 21-22 coupled to the wheel, wherein the wheel includes a friction component disclosed in col. 3 line 22 for inhibiting rotation of the wheel, the brake having a first state wherein the friction component is positioned a first distance from the wheel rotor (before pre-charging), and a second state or the pre-charging state disclosed in col. 3, lines 20-24 wherein the friction component is positioned a second distance from the wheel rotor closer than the first distance, the brake further including a third state wherein the friction component is positioned a third distance from the wheel rotor (particularly a third distance from the surface of the rotor opposite the friction component), the vehicle braking system comprising: a proximity sensor or device that produces element "d" in figure 3 which

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is one of the inputs into element 15 (also see col. 8 lines 28-32) coupled to the vehicle and sensing an object along a direction of travel of the vehicle and generating a proximity signal therefrom, Rieth et al. show in figure 3 a vehicle speed sensor or device to produce "Vref" which is one of the inputs into element 15 coupled to the vehicle and sensing a speed of the vehicle and generating a vehicle speed signal therefrom (also see the disclosure in col. 8 lines 28-32) and in figure 3 a brake pressure sensor or element to produce "ph" which is one of the inputs into element 20 coupled to the vehicle and sensing a current brake pressure and generating a current brake pressure signal therefrom (see col. 7 lines 34-35), and a controller 17,20 receiving the proximity signal and generating therefrom a threat of collision prediction signal, the controller moving the friction component from the first state to the second state as a function of a high threat of collision determined from the threat of collision prediction signal as suggested in col. 8 lines 28-39. The Office Action recognizes Rieth et al. do not include the limitation of the friction component reaching a third state from a signal indicating that a throttle pedal has been released.

Maekawa allegedly teach in col. 4 lines 34-37 the use of a brake control system in which a third state of actual brake application is achieved from detection of a signal indicating that a throttle pedal has been released.

In response to this rejection, claim 15 is amended to include that movement of the friction component to the second state is a first brake pre-charge operation and moving the friction component to the third state is a second brake pre-charge operation in accordance with paragraphs [0026] and [0028] of the Detailed Description Of The Preferred Embodiment. No new matter has been added. Thus claim 15 is believed to be allowable for at least the same reasons as discussed above regarding claim 11. Namely, none of the references include a second pre-

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charge operation and instead include brake activation. Claim 21 depends from claim 15 and is believed to be allowable for at least the aforementioned reason. Further, claims 23-27, 29, and 32 are believed to be allowable for at least the same reasons as claim 21.

Claims 17, 19, 31, and 33 are rejected as being unpatentable over Rieth et al. and Maekawa and further in view of DeLuca et al. Rieth et al., as modified, fail to include the limitation of the controller inhibiting the friction component moving from the first state or the second state to the third state only if a failure with throttle actuation cannot be determined.

DeLuca et al. allegedly teach in lines 6-11 from the bottom of the abstract the use of a braking system in which a controller will inhibit the third state which is brake application (by disengaging the brake system as disclosed in line 10 from the bottom of the abstract) only if a failure with throttle actuation cannot be determined.

Claims 17, 19, 31, and 33 depend from claims 15 and 29 and are believed to be allowable for at least the reasons discussed regarding those claims.

Claim 18 is rejected as being unpatentable over Rieth et al. in view of Maekawa and further in view of Igaki et al. The Office Action recognizes Rieth et al. fail to include the limitation of the movement of the friction component being halted through throttle pedal activation.

According to the Office Action, Igaki et al. teach in col. 8 lines 9-13 the use of automatic braking or the automatic movement of a friction component being halted through throttle pedal activation.

Claim 18 depends from claim 15 and is believed to be allowable for at least this reason.

Claims 20 and 34 are rejected as being unpatentable over Rieth et al. in view of Maekawa and further in view of Durling. Rieth et al., as modified, fail to include the limitation of inhibiting the movement of the friction component in response to failure of the vehicle brake system.

Durling allegedly teaches in lines 3-5 of the abstract teaches movement into a third state or brake application (particularly in an automatic fashion) in response to failure of the vehicle brake system.

Claims 20 and 34 depend from claims 15 and 23 and are believed to be allowable for at least the reasons discussed regarding those claims.

Claims 22 and 28 are rejected as being unpatentable over Rieth et al. and Maekawa and further in view of Bloomfield et al. Rieth et al., as modified, fail to include the limitation of the proximity sensor being a radar, lidar or vision based sensor.

Bloomfield et al. allegedly teach in claim 24 the limitation of a proximity sensor being in the form radar sensor.

Claims 22 and 28 depend from claims 15 and 23 and are believed to be allowable for at least this reason.

Claims 1 and 23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 13 of U.S. Patent No. 6677855 in view of Rieth et al. and Igaki et al. In view of the reasons put forth above regarding claims 1 and 23, the Applicants believe that the claims are not obvious in view of Rieth et al. and Igaki et al.; and therefore this rejection is also believed to be overcome.

**Conclusions:**

In view of the aforementioned remarks, it is respectfully submitted that all pending claims are in a condition for allowance. A notice of allowability is therefore respectfully solicited. Please charge any fees required in the filing of this amendment to Deposit Account 06-1510 or if insufficient funds use 06-1505.

Should the Examiner have any further questions or comments please contact the undersigned.

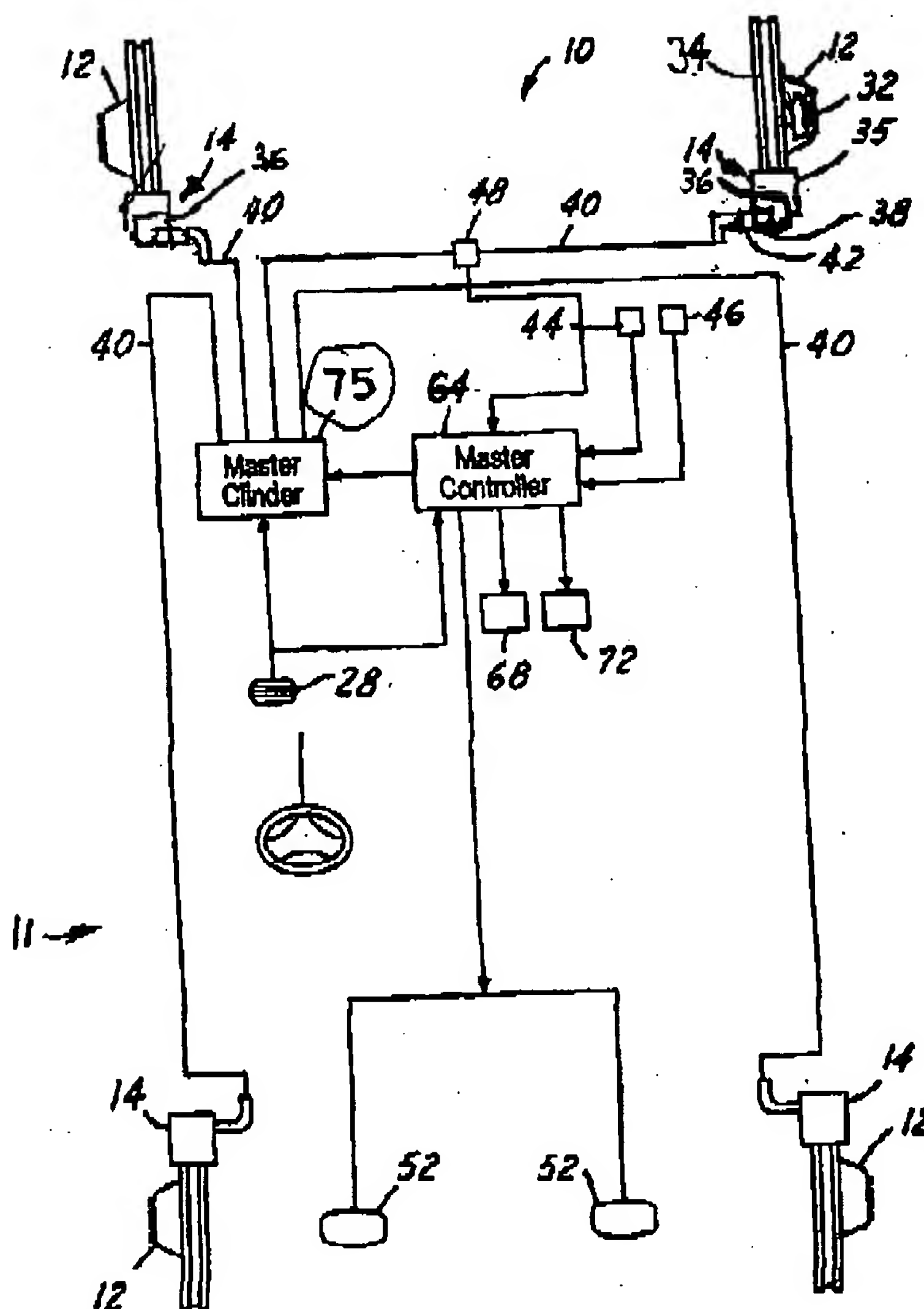
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**FIG. 1**



Annotation Marked-up Drawings Application No. 10/707,501

